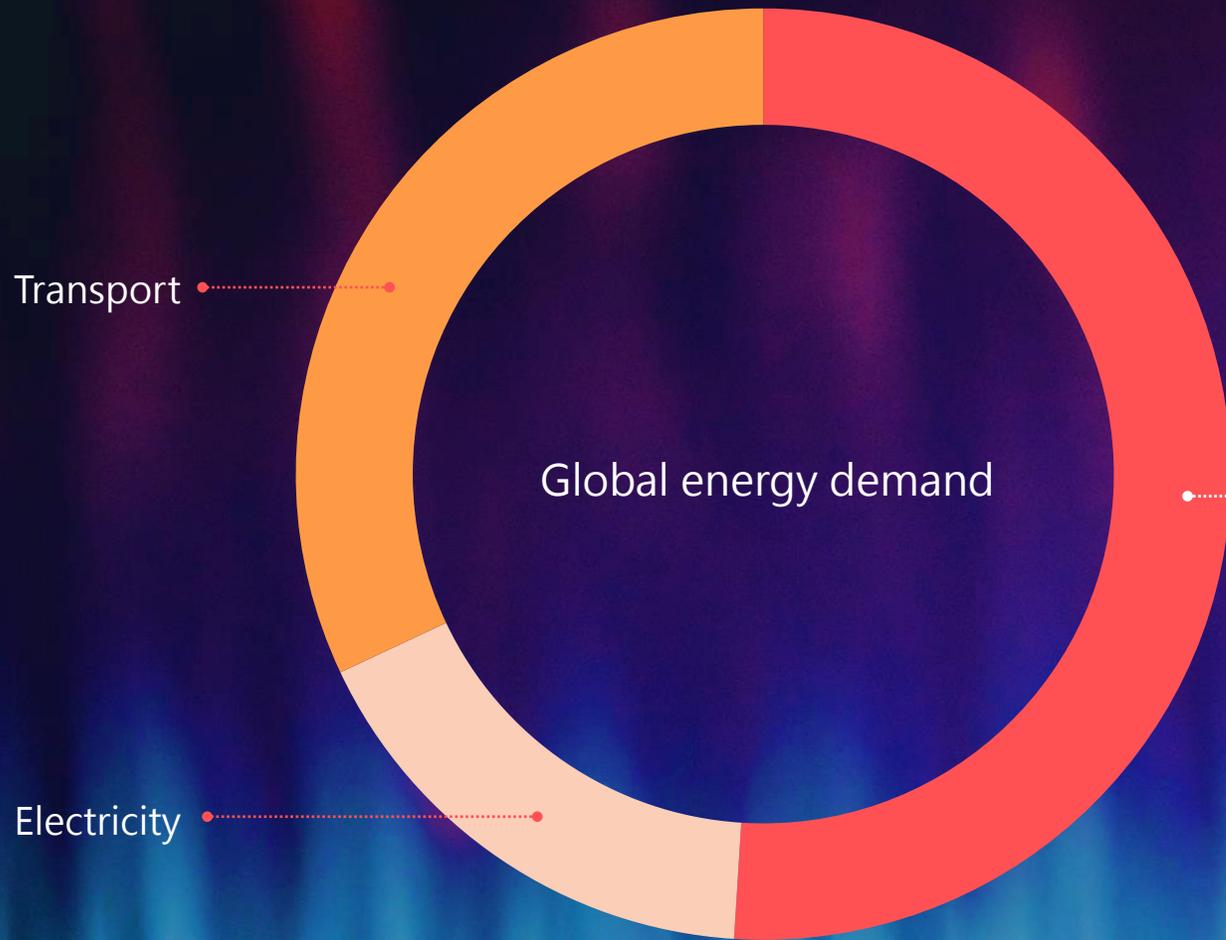


Naked Energy.

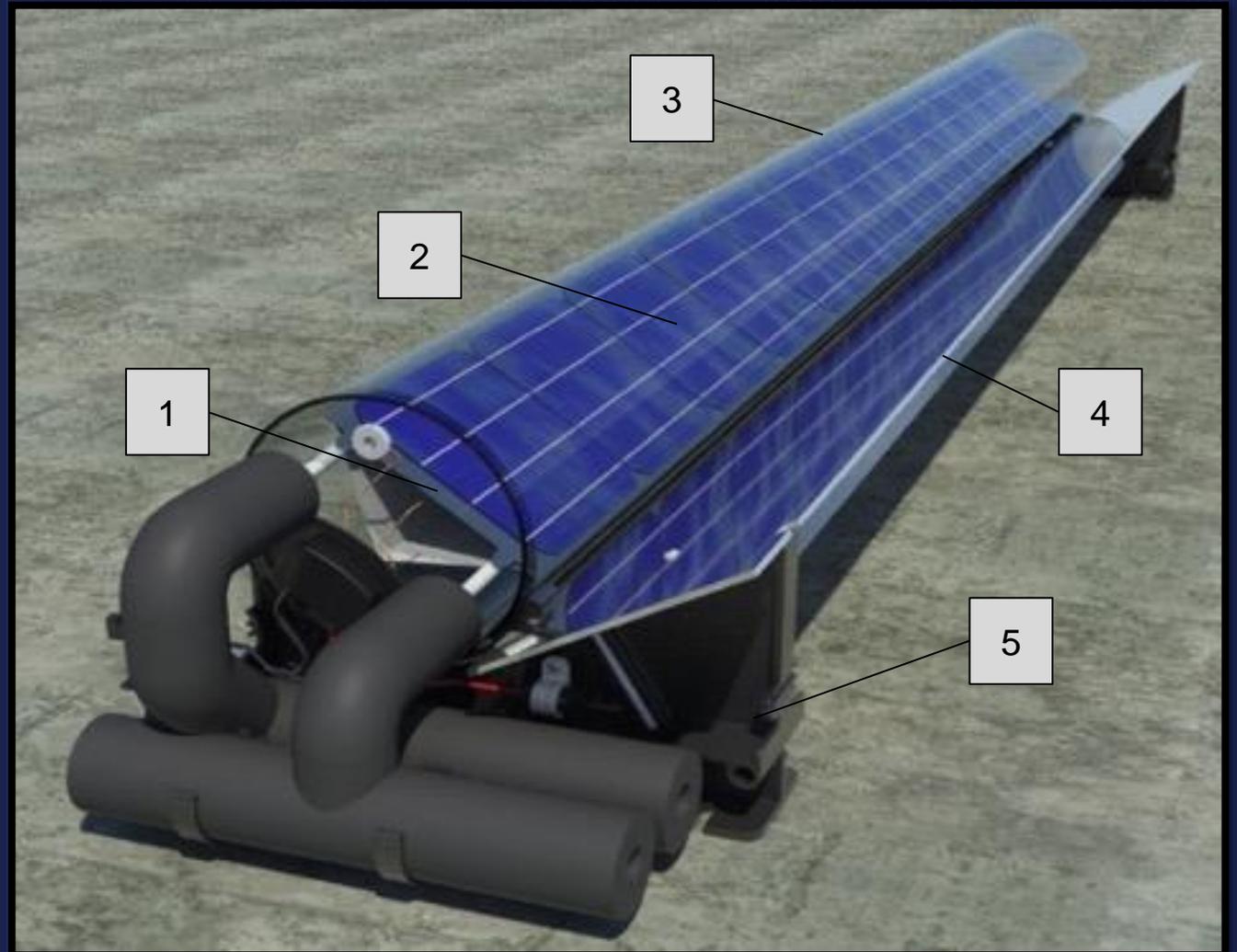
Changing Energy for Good



Heat

is the largest energy end-use, accounting for **over 50%** of global energy demand.

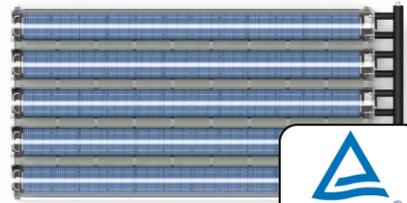
1. ABSORBER PLATE
2. PV CELLS
3. GLASS VACUUM TUBE
4. INTEGRATED REFLECTOR
5. INTEGRATED MOUNTING



Introduction to Virtu: four products

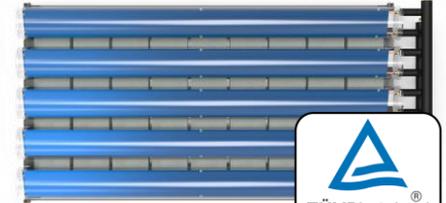
virtu^{PVTHD}

- heat and power.
- designed for sloped roofs
- **72% total efficiency***
57% thermal + 15% electrical
- Undergoing certification



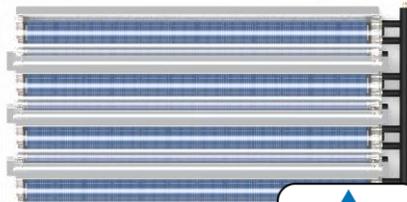
virtu^{HOTHD}

- high-temperature heat
- designed for sloped roofs
- **84% thermal efficiency***
- Fully certified



virtu^{PVT}

- heat and power.
- designed for flat roofs
- **51% total efficiency***
39% thermal + 12% electrical
- Undergoing certification

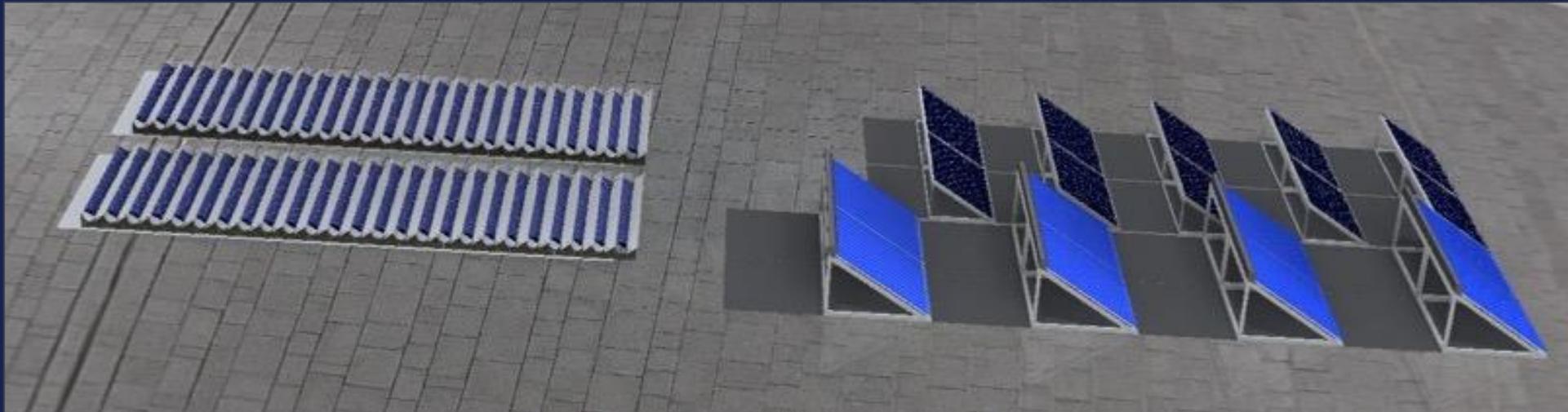


virtu^{HOT}

- high-temperature heat
- designed for flat roofs
- **63% thermal efficiency***
- Fully certified



- Optimized especially for flat roofs – easy installation, no A-frames, integrated ballast solution
- Low profile – low visibility from ground, easier for planning approval, low wind loading
- Absorbers angled towards sun within tubes – no large shading gaps needed
- High energy density – separate thermal + PV panels require 50% more area compared to Virtu®



Rooftop solar – without compromise

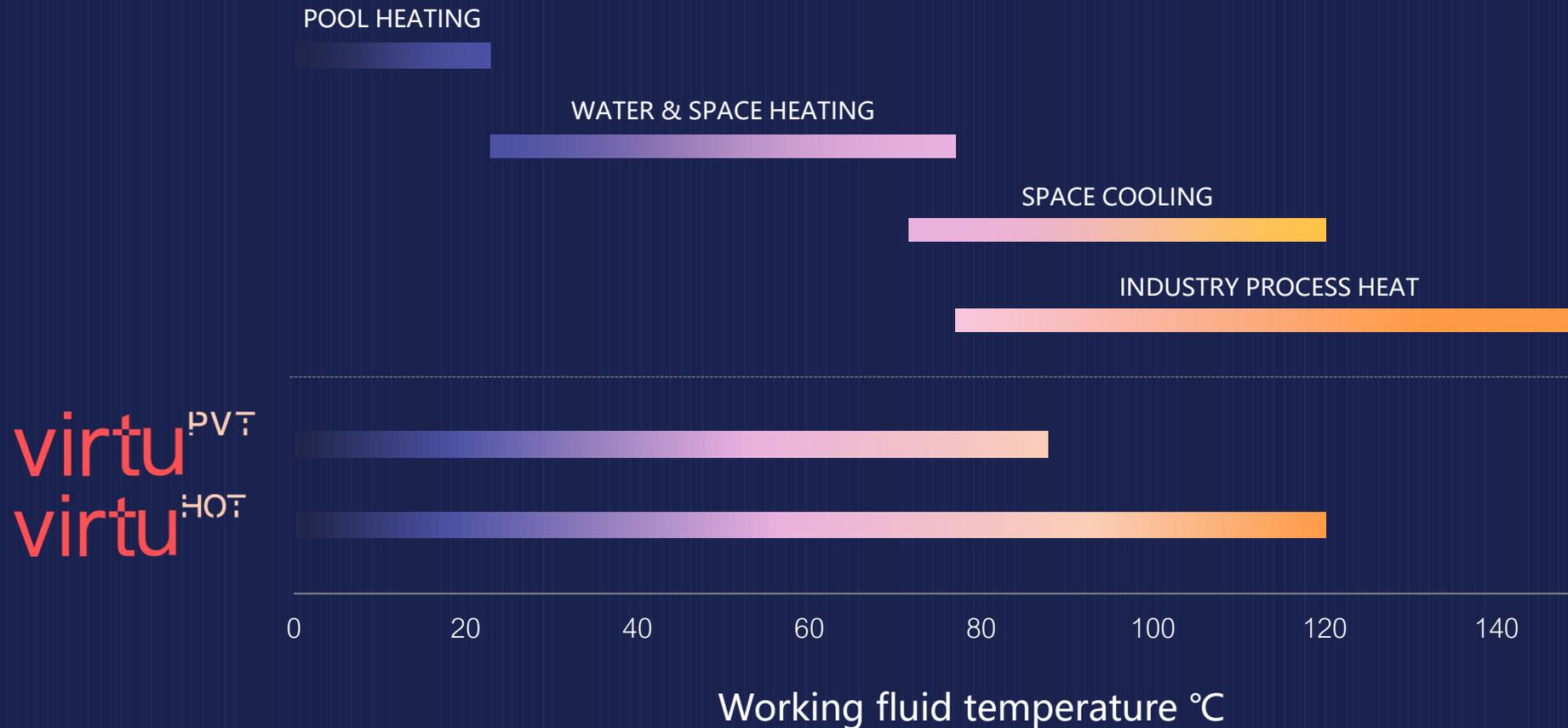
CO₂/m²/yr



Up to 3 times the carbon savings* for the same area.

Perfectly matched

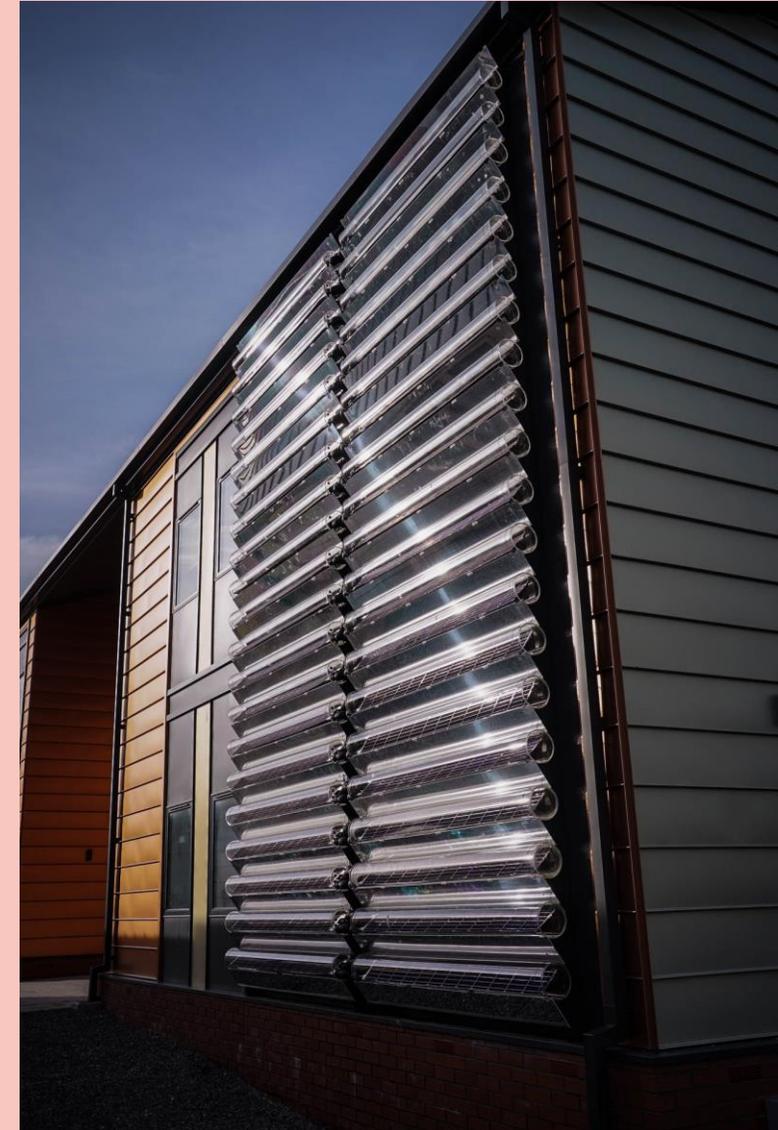
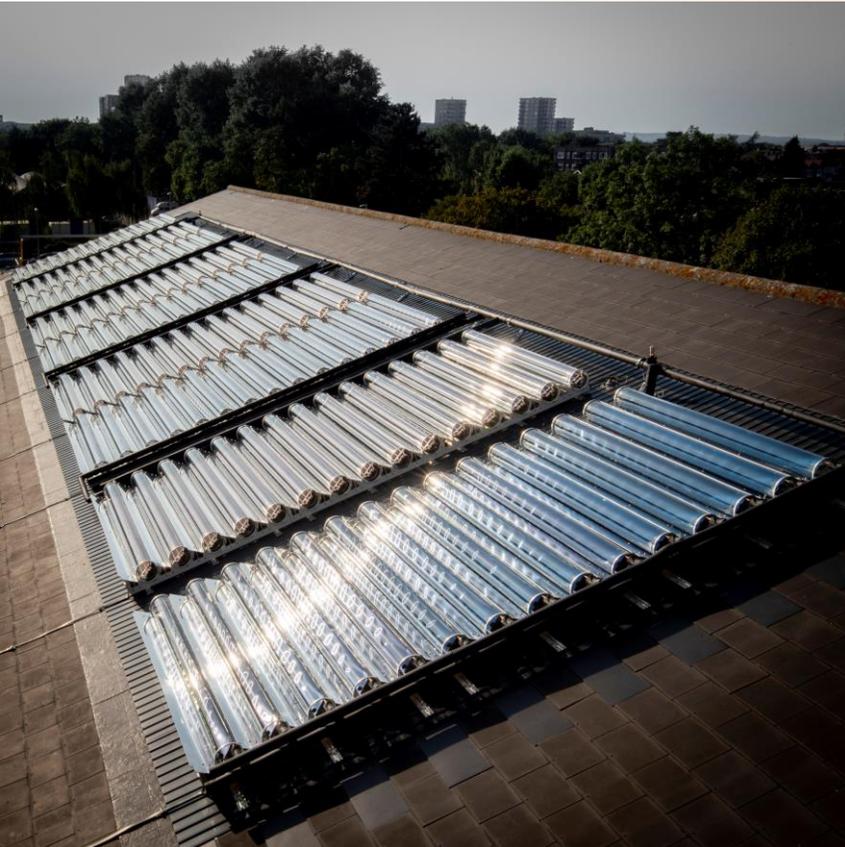
The ideal temperature for many heat processes.



Versatile & Beautiful

Naked Energy.

Our system delivers more energy on flat roofs, pitched roofs, ground mounted or on vertical facades.



Sainsbury's

Virtu in the real world: Sainsbury's pilot

- Naked Energy's longest running pilot is the small but well monitored system at Sainsbury's supermarket in Crawley, UK



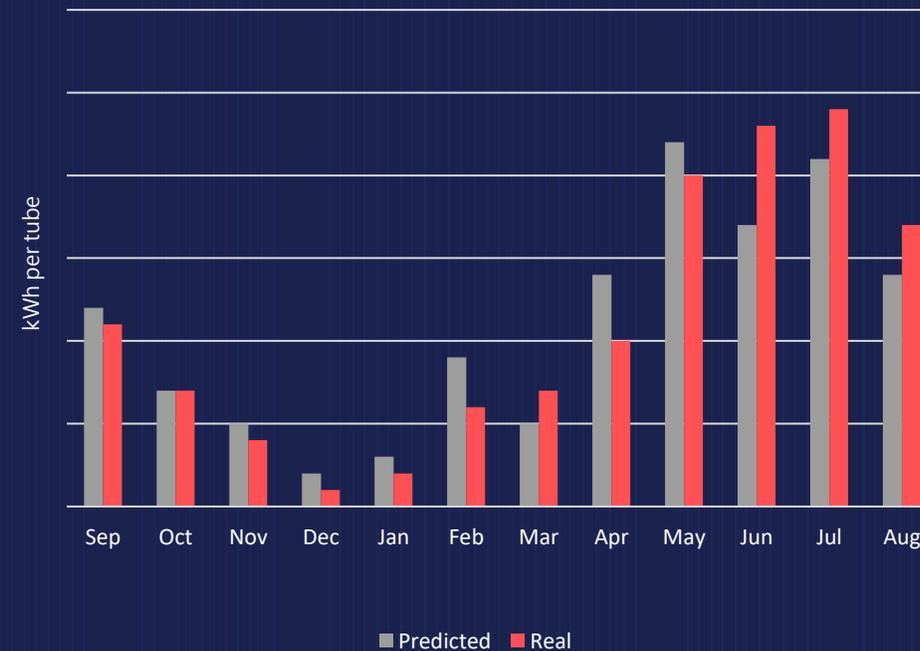
Performing as predicted

Sainsbury's virtu^{PVT}

Predicted vs actual energy generation - Electrical



Predicted vs actual energy generation - Thermal



Integration with Virtu

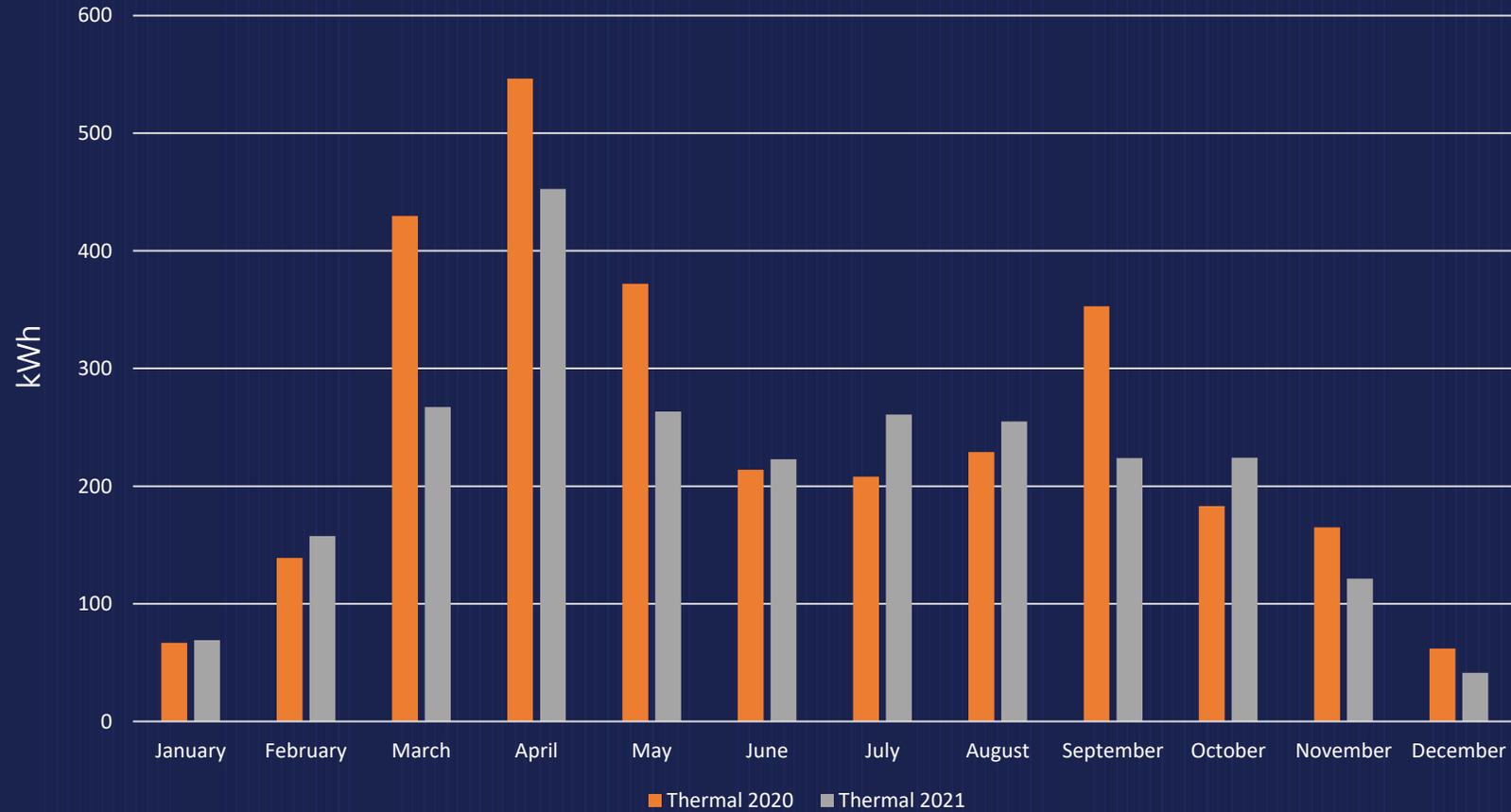
Naked Energy.

virtu^{PVT}

Specific - Active Office Swansea first energy-positive office in the UK

- 10 kWp thermal – 2.5 kWp electrical
- Vertical façade installation
- Fully integrated with thermal and electrical storage systems
- -9 Non-domestic EPC rating
- *(56 typical new build, 94 existing stock)*
- First year performance:
 - Scope 1 (displacing gas): 3211 kWh equates to 722 kg CO₂
 - Scope 2 (displacing electricity): 1666 kWh equates to 472 kg CO₂

Active Office – benefits of the design



Integration with Virtu

Naked Energy.

virtu^{HOT}

Deltares in The Netherlands

- 88 m² / 36kWp solar thermal array
- Inter-seasonal storage with aquifers
- Combined with heat pumps
- Daily performance data (September 2018):
 - 169 kWh thermal (sunny)
 - 115 kWh thermal (cloudy)

Proven technology

Naked Energy.

Following Solar Keymark Certification and Series A funding, Naked Energy & their partners have completed dozens of projects across 8 different countries and have a robust pipeline of 50+ Virtu installations in development for the coming year, including many 1000+ tube installations.

virtu^{HOT} Woodgreen Leisure Centre, Oxford, UK



virtu^{HOT} Delémont apartments, Switzerland



virtu^{PVT} Ministry of Defence, Netherlands



virtu^{PVT} University of Westminster, London, UK



virtu^{PVT} SPECIFIC Active Office, Swansea, UK



virtu^{HOT} Vierhousterbos Hotel, Netherlands



Naked Energy' s largest installation yet!

Naked Energy.



virtu^{PVT} virtu^{HOT}

This 1000 tube installation with an iconic building will provide heat & power, the heat being utilized for space conditioning and dehumidification.

Tracking Performance

Naked Energy's data acquisition capability and remote monitoring platform, developed in partnership with PAD Technology.

The remote monitoring platform enables accurate, ongoing measurement of array performance, providing customers with confidence in continued system functionality.

Features include:

- Thermal Output monitoring
- Electrical Output monitoring
- Financial reporting
- Carbon reporting
- Automated fault detection
- Performance optimisation
- PV/renewables integration

Operator

System schematic

Array 1 temp: 34 °C
Array 2 temp: 32 °C
Electrical generation: 2.7 kW
Heat generation: 4.4 kW
Temperature in: 28 °C
Temperature out: 47 °C
System pressure: 1.5 bar
Flow rate: 159 L/hour
Tank 1 temperature: 45 °C
Tank 2 temperature: 45 °C
Tank 3 temperature: 42 °C

System variables

System alerts

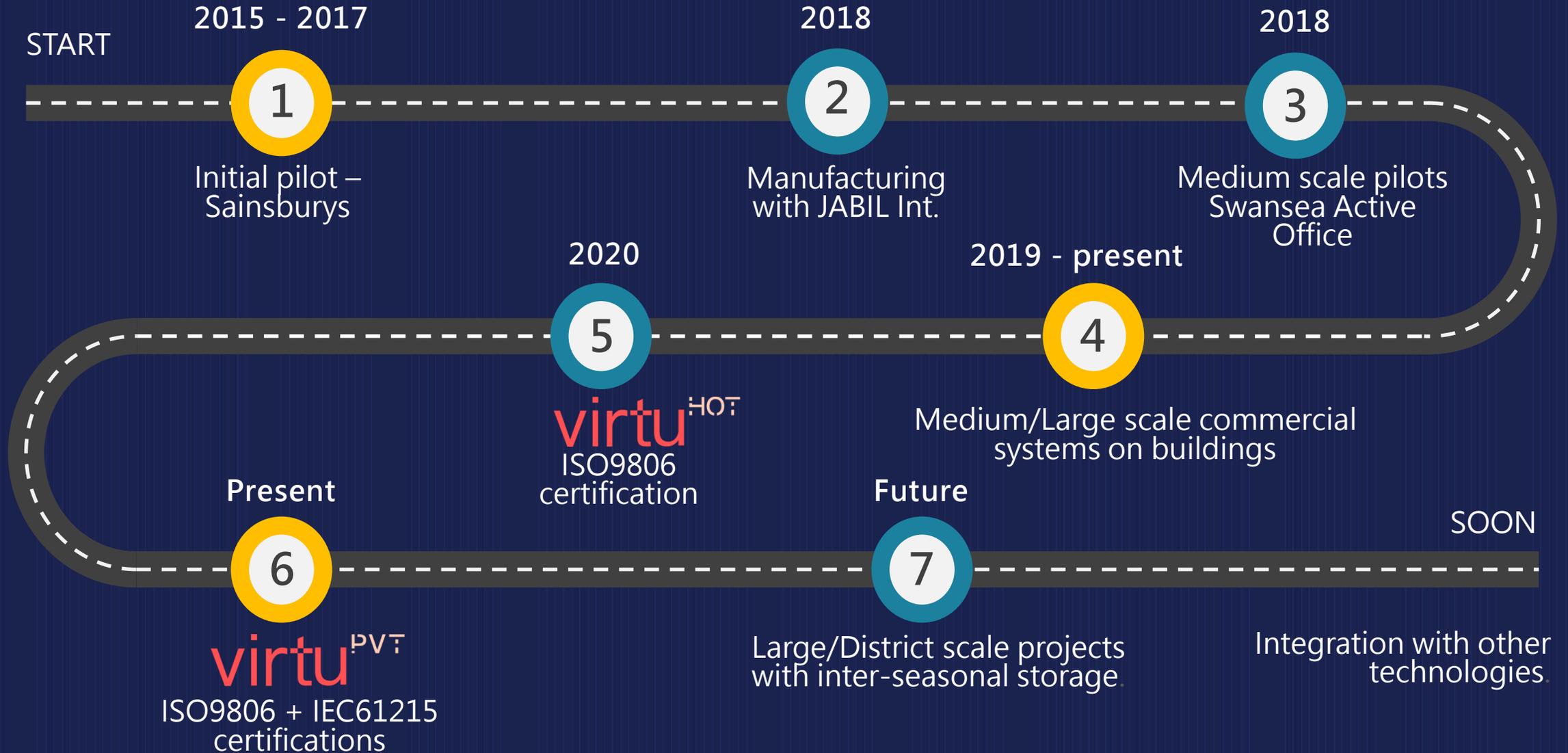
Alert name	Description	Status	Last alert
System pressure	Alert when P < 0.5 bar	In range	26/04/21
Tube temperature	Alert when T < 90 C	In range	21/03/21
PV	Alert when	PV Active	21/03/21

irtu

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Our trajectory

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Call for partnerships

We see great potential in integrating Virtu with other sustainable technologies to amplify the delivery and storage of heat and power.

Seeking partners in the following areas of expertise:

- **Inter-seasonal heat storage**
- Solar Cooling
- Solar heat for industrial/agricultural processes
- Integration with heat pumps

Contact Us

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virtu

Solar
Redefined